



# The Kindred House

## 1998 Five Star Home Grant Recipient

### Description

This home, designed by Garfield Kindred and constructed by Dave Bach Construction, is located in the City of Hancock in Michigan's Upper Peninsula. This home is one of five residences which received a Five Star Home Grant from the Energy Office in 1998. Funding for the grants came from the U.S. Department of Energy. Home energy ratings, offered by the Energy Office, indicate the energy efficiency of a home by modeling the home's energy performance against an ideal. This home achieved a five star rating on the Home Energy Rating Scale.

Not only is this home energy efficient, but it is an example of passive solar design strategies. The home was designed to make maximum use of the southern exposure with large windows located in the main living areas. This system reduces the heating and cooling loads of the home. The main source of space heating for the home is provided by a gas-fired hot water heater which also supplies the domestic hot water.

### Specifications

- 2x6 super-insulated walls
- R-value of 25 in the walls and a R-value of 57 in the roof
- Insulation under the floor slab
- Passive solar design strategy
- Large southern low-E windows; some windows on eastern exposure; a few small windows on northern exposure.
- Dark ceramic tile floors over ½ inch cement board on upper floor, and 4" brown dyed concrete on lower floor provides for heat storage
- Many deciduous trees surrounding house provide shade in summer, allow light/heat in winter
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- Natural-gas fired water heater used for space heating which also supplies domestic hot water
- Air-to-air heat recovery unit
- Heat recovery unit transfers heat from the bathroom and kitchen exhaust air to the fresh intake air.
- In the summer, it will temper incoming air.
- This reduces the heating and cooling load and improves the indoor air quality.
- Other energy efficient features
- Compact fluorescent lighting
- Energy efficient appliances
- Low-volume toilets
- Water-conserving shower heads

### Energy Savings

The home was completed this past October, so energy consumption data is not yet available. Based upon the Home Energy Rating conducted for the house, it is predicted that the annual cost of heating the home will be \$280. This cost is significantly lower than the annual heating expenditures for a similarly sized home in this region. An electrical engineering professor from the local university has asked to monitor the house during 1999 for energy consumption.

This data will serve the university and provide hard data to promote energy efficient home and passive solar home designs in Michigan.

**Promotion**

This home has received much favorable press in the local newspaper and on television. The home was included on the Keweenaw Peninsula Solar Home Tour as part of the American Solar Energy Society's annual National Tour of Solar Homes. Over 100 visitors came to see the house during the tour. Two childrens' books which promote energy efficient house design have been written and published by the Kindreds. The local television station is releasing the footage on the house construction for the making of a documentary scheduled for next year. The Passive Solar Council has indicated interest in doing a case study on the house. An article on the home will be submitted to the American Solar Energy Society as well.



Visit the Garfield Kindred Associates website at:  
<http://www.garfieldkindred.com/kindred.html>

*Feel free to contact us if you have any ideas for case studies or other questions :*

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